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14. ABSTRACT

Purpose: The purpose was to assess the feasibility of Qigong practice in wounded, ill and injured military Service members who had been deployed; effects on stress, sleep, and somatic symptoms; and to evaluate participants' experience. Design: Wounded, ill and injured military Service members experience significant stress and are at risk for developing chronic conditions. Wellness practices such as Qigong may positively impact their ability to engage in successful rehabilitation. A single-group, pre-and post-test, mixed-method pilot study was conducted to assess the feasibility of offering 20 Integral Qigong classes in a 10-week program to wounded, ill and injured military Service members in rehabilitation at a Military Treatment Facility. Methods: Feasibility outcomes included levels of attendance, attrition, dropouts, and home practice. Efficacy outcomes included stress, sleep, and somatic symptoms. Pre- and post-questionnaires and exit interviews were administered using Perceived Stress Scale (PSS), Pittsburgh Sleep Quality Index (PSQI), Patient Health Questionnaire -15 (PHQ-15), and a Client Satisfaction Questionnaire (CSQ). Content Analysis methodology was used to analyze the interview data. Sample: Twenty male and six female outpatient military personnel receiving care at Walter Reed Army Medical Center for deployment-related injury were enrolled. Their ages ranged from 20-53 years (M=35, SD=9.3). Analysis: Means, standard deviations and ranges for attendance, missed classes and home practice were calculated. Paired t-tests were used to compare mean scores at baseline to post intervention for those who completed post-questionnaires. Associations between attendance rates and outcome scores were analyzed. Findings: Participants attended an average of 8.14 classes (SD= 4.9); average engagement was 5.7 (SD 3.5) weeks. Reasons for dropout included discharge (n=5), schedule conflict (n=1) and unknown (n=5). Seven participants completed post-questionnaires. Effect sizes were moderate for stress (.455), sleep (.426), and somatic symptoms (.619). Participants reported improved sleep, and decreased stress and anxiety. Implications for Military Nursing: This research supports the benefits of Qigong practice in reducing stress and related symptoms. Nurses can provide education about Qigong skills and referrals to integrative practices, which may help, facilitate rehabilitation goals.

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Abstract

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Design: Wounded, ill and injured military Service members experience significant stress and are at risk for developing chronic conditions. Wellness practices such as Qigong may positively impact their ability to engage in successful rehabilitation. A single-group, pre-and post-test, mixed-method pilot study was conducted to assess the feasibility of offering 20 Integral Qigong classes in a 10-week program to wounded, ill and injured military Service members in rehabilitation at an Military Treatment Facility.

Methods: Feasibility outcomes included levels of attendance, attrition, dropouts, and home practice. Efficacy outcomes included stress, sleep, and somatic symptoms. Pre- and post-questionnaires and exit interviews were administered using Perceived Stress Scale (PSS), Pittsburgh Sleep Quality Index (PSQI), Patient Health Questionnaire -15 (PHQ-15), and a Client Satisfaction Questionnaire (CSQ). Content Analysis methodology was used to analyze the interview data.

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Implications for Military Nursing: This research supports the benefits of Qigong practice in reducing stress and related symptoms. Nurses can provide education about Qigong skills and referrals to integrative practices, which may help, facilitate rehabilitation goals.

TSNRP Research Priorities that Study or Project Addresses

Primary Priority

Force Health Protection:	☐ Fit and ready force ☐ Deploy with and care for the warrior x Care for all entrusted to our care
Nursing Competencies and Practice:	☐ Patient outcomes ☐ Quality and safety ☐ Translate research into practice/evidence-based practice ☐ Clinical excellence ☐ Knowledge management ☐ Education and training
Leadership, Ethics, and Mentoring:	☐ Health policy ☐ Recruitment and retention ☐ Preparing tomorrow's leaders ☐ Care of the caregiver
Other:	☐

Secondary Priority

Force Health Protection:	☐ Fit and ready force ☐ Deploy with and care for the warrior ☐ Care for all entrusted to our care
Nursing Competencies and Practice:	x Patient outcomes ☐ Quality and safety ☐ Translate research into practice/evidence-based practice ☐ Clinical excellence ☐ Knowledge management ☐ Education and training
Leadership, Ethics, and Mentoring:	☐ Health policy ☐ Recruitment and retention ☐ Preparing tomorrow's leaders ☐ Care of the caregiver
Other:	X Integrative practices to improve outcomes for injured service members

Progress towards Achievement of Specific Aims of the Study or Project

Findings related to each specific aim, research or study questions, and/or hypothesis:

The primary aim of this exploratory study was to assess the feasibility and acceptability of Qigong, a mind-body exercise, in wounded, ill and injured military Service personnel returning from combat-related deployment. The second aim was to assess the potential efficacy of Qigong on reducing or mitigating stress, sleep, and somatic symptoms. The third aim was to evaluate participants' experience in using this intervention. The long-term goal of this project was to develop a multisite intervention to enhance wellness and improve rehabilitation outcomes for wounded, ill and injured Service members.

This single-group, pre- and posttest, mixed-method pilot study assessed the feasibility of offering wounded, ill and injured military Service members 20 sessions of Jahnke's Integral Qigong style classes over ten-week periods . Outpatient military personnel receiving care for deployment-related injuries were asked to attend one-hour classes twice a week and practice at home 15-20 minutes a day. Feasibility outcome measures included levels of attendance, attrition, dropouts, and home practice. Efficacy outcomes included changes in stress, sleep, and somatic symptoms. Participants completed six self-administered questionnaires at baseline (T1): Personal Data Form (PDF), Brief Symptom Inventory-18 (BSI), Perceived Stress Scale (PSS), Pittsburgh Sleep Quality Index (PSQI), Patient Health Questionnaire-15 (PHQ), and the Credibility/Expectancy Questionnaire (CEQ). At completion of the program (T2), participants completed post-PSS, PSQI, PHQ, and Client Satisfaction Questionnaire (CSQ); and participated in an exit interview to provide evaluations of the program (Figure 1).

A qualitative component was included to provide additional data on feasibility, acceptability, and effectiveness of the intervention; i.e., structured interview guide was developed to assess participant satisfaction, perceived benefits, barriers, and suggestions in planning a larger study. Content Cnalysis was used to analyze the study participants' interview data, emails, field notes, and practice log comments.

Progress towards achieving each specific aim of the study or project, answering each research or study questions, and/or hypothesis:

Primary aim. Feasibility was assessed by tracking the rate of participant accrual, attendance, and dropout rates at different time points. Frequencies of Qigong home practice sessions were calculated including average number of returned logs, number of practice sessions per week, and number of days using Qigong skills outside of home practice.

Outpatient military personnel were enrolled from May 2010 through April 2011 with an overall accrual rate of 2.2 participants per month. Twenty males and six females enrolled, ages 20-53

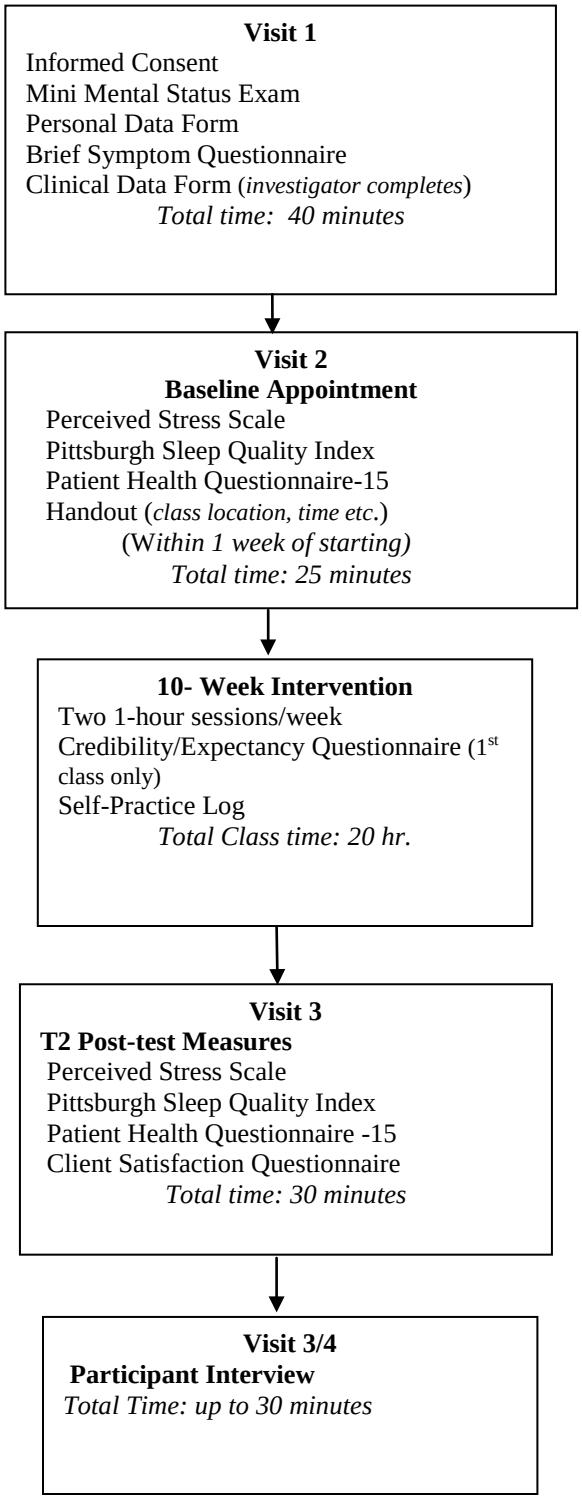

Figure I. Study Overview

years (M=35, SD=9.3). Five participants withdrew before attending any classes, leaving 21 sets participant data available for analysis (Figure 2). Participants attended an average of 8.14 classes (SD= 4.9). Average engagement in the program was 5.71 (S.D. 3.5) weeks with an overall attendance rate of 41.2% (SD=25.3%). Women attended an average of 13 (SD=4.5) classes while men attended an average of 6.6 (SD 4.14) classes; i.e., attendance of women (p=.008) was significantly greater overall than attendance of men.

The research study team originally defined "completers" as those who attended at least 85% of the scheduled classes, based on the assumption that it would take that much exposure to the intervention to experience benefit. Only two participants met this criterion, reflecting the mobility and acuity level challenges of this population. Many participants missed classes due to circumstances they reported as beyond their control (changes in schedules for example) yet they remained engaged in the program; e.g., some participants returned to classes after convalescent or other leave. As this pattern was identified, and to more realistically characterizes attendance and exit status, the research study team created additional variables, including time engaged in the program; reasons for exit and missed classes; and type of exit data provided.

The research study team defined "remained engaged" as those participants who returned to the program after missing one or more classes, provided some type of exit data, and were not discharged from the facility during the intervention. Based on this revised definition, 10 participants completed the study (38.5%) and 11 exited before completion. Newly defined, the "completers" attended an average of 17 classes (range 13-20). Participants missed classes because of scheduling conflicts, vacation/holiday, and unknown reasons (Figure 3). Women missed significantly fewer (p=.009) classes than men: M=6.8 (SD 4.5) vs. 13.25 (SD 4.3) respectively.

The research study team defined "exited early" as those who were unable to complete the intervention because they were discharged from the facility or had ongoing schedule conflicts (medical, work, training, or personal). Of the 11 participants who exited early, five (45%) were discharged, one (10%) had a medical schedule conflict and five (45%) exited for unknown reasons. Six of these participants provided some type of exit data for analysis (3 interviews, 1 email, and 2 other communication). The research study team made several attempts via phone, text or email to contact participants who exited for unknown reasons; and also reached out to the five participants who withdrew prior to intervention to determine the reasons for their withdrawal. One participant was discharged from the facility; two had internship conflicts; and two did not return the research study team's messages.

Home Practice. Participants documented their home practice in practice logs with each log representing one week of home-practice experience. Of the 21 participants, 11(52.3%) returned at least one log. Among these participants, an average of 4.73 logs (SD 3.3) was returned. Based on the number of weeks that each participant engaged in the program (M 6.12 weeks, SD 2.72), reported an average of 2.89 (SD 1.85) practice sessions per week were reported, with average session duration of 15.84 minutes (SD 12.42).

Qigong Skills. The practice logs included a binary query ("yes" or "no") as to whether participants used Qigong skills at other times during the day outside of formal home practice.

Eleven participants recorded using Qigong skills an average of 3.09 days/week (SD 2.23) based on the number of weeks (M 4.45 weeks, S.D.3.3) that the research study team has documented records of Qigong skills' usage.

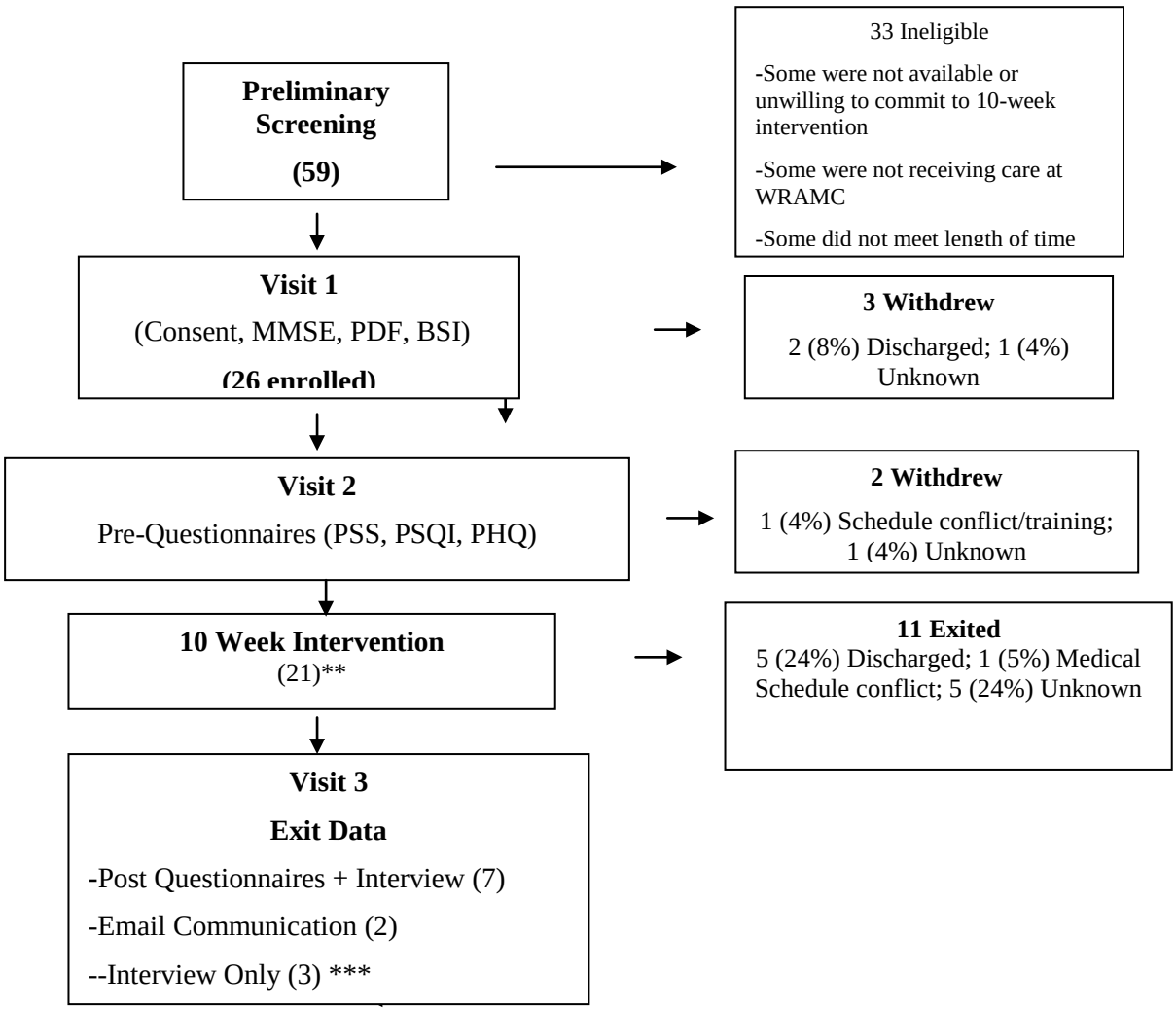

Figure 2. Flow Diagram of Retention and Attrition

* Eligibility criteria were later expanded to include any wounded, ill or injured Service member receiving care at WRAMC and to omit restriction on length of time since return from deployment.

** 21 participants attended one or more classes; M= 8.14 classes (SD 4.9); average engagement was 5.6 weeks (S.D. 3.5).

*** Participants exited due to discharge but provided exit interview

Event	Count (%)*
Unknown	12 (57)
Schedule conflict-Medical	7 (33)
Schedule conflict- Work	5 (24)
Vacation/Holiday	5 (24)
Convalescent Leave	4 (19)
Schedule conflict- WTU event	4 (19)
Schedule Misunderstanding	4 (19)
Surgery	3 (14)
Schedule conflict- Training	2 (10)
Illness	2 (10)
Schedule conflict- Personal	1 (5)
Other Reason **	2 (10)

Figure 3. Reasons for missing classes (N=21)

*Count: number of participants who missed 1 or more classes due to the event.

** Participants missed class because substitute was teaching

Aim 2: The secondary aim was to assess the potential efficacy of Qigong practice on reducing or mitigating stress, sleep, and somatic symptoms. Of the 21 participants who attended classes, ten completed formal exit data [both questionnaires and interview (7) or interview only (3)]. Three participants provided detailed follow-up emails or cell phone text messages; three provided phone comments; and five provided no data. Paired T-test was used to compare baseline BSI scores for the 10 participants who completed formal exit data and those who did not. No significant differences were found (p=.86).

Effects. Only seven participants had both pre- and post-questionnaire data available. Paired t-test analyses compared the pre-test to post-test differences in PSS (stress), PSQI global score (sleep) and PHQ (somatic symptoms). No significant differences were noted; however, changes were in the hypothesized direction (Appendix 1). Effect sizes were moderate for stress (.455), sleep (.426), and somatic symptoms (.619).

Stress. The mean PSS score at baseline was 20.08 (SD 6.6) and 16.14 (SD 4.37) at follow-up. Reported stress levels were similar to another study (of outpatient veterans) at baseline prior to a Mantram intervention (M 21.3; SD 7.03) (Bormann et al., 2005). Male participants reported a mean PSS score of 18.94 (SD 6.80) while female participants reported a mean score of 23.33 (SD 5.39). No significant difference was found (p =0.17).

Sleep. The PSQI mean global score at baseline was 10.27 (SD 4.4) and 8.4 (SD 2.14) at follow-up. Cut-off scores greater than eight suggest significant problems with sleeping (based on studies with cancer patient population. Using this cut-off score, 61.54% had problems with sleep at baseline. Participants diagnosed with PTSD (as reported in their Patient Records or as self-reported) (n=7) and those with both PTSD and TBI (n=11) had worse sleep quality than those without these conditions (p=.03 and p=.02 respectively).

Somatic Symptoms. The PHQ-15 was used to measure somatic symptom severity. The mean score at baseline was 11 (SD 4.4) and 8.1 (SD3.6) at follow-up. Nine participants were classified as “minimal to low”, nine as “medium”, and five as “high” levels of severity at baseline. The most commonly reported symptoms described as “bothered a little” or “a lot” included pain in arm, legs or joints (90.9%); back pain (86.9%); trouble sleeping (82.6%), feeling tired or low energy (78.3%), nausea (69.57%) and headaches (69.57%). The most frequent symptoms endorsed as “bothered a lot” included trouble sleeping (n=10); feeling tired (n=10), pain in arms, legs or joints (n=11), and headaches (n=11).

Satisfaction. Seven participants completed the CSQ at follow-up. The mean score was 27.28 (SD 3.03; range 8-32) indicating a high level of satisfaction with the program. High ratings were endorsed for the items “quality of classes” (M 3.7, SD.48); and overall satisfaction with the program (M 3.57, SD.53). Participants endorsed that Qigong classes helped them deal more effectively with their symptoms or concerns (3.14, SD .37) and that they would recommend the classes to a friend in need of similar help (M 3.7, SD .48).

Aim 3: The third aim was to evaluate participants' experience in using the intervention. This analysis was based on exit interviews (n=10), detailed emails (n=3) and field notes based on the research coordinator's informal discussions with participants. The research team noted that participants seemed to go through a process of three phases as they learned the practice. The team identified the initial phase as "Facing a New Experience", which was characterized by various reactions including surprise, uncertainty, and skepticism. Participants were focused on learning new skills during this phase and some found it challenging. During the second phase, which the team identified as "Adapting to the Practice", participants were "Discovering the Benefits," "Having Ups and Downs" and "Noticing Improvement in Symptoms and Function." The team dubbed the third phase, "Incorporating Practice in Daily Life"; it involved "Finding the Practice Portable," "Adapting Healthier Coping Styles," and "Planning to use Qigong Skills in the Future." The phases were not always linear; some participants reported barriers or challenges, such as struggles with home practice, missing classes due to scheduling conflicts or surgeries, and dealing with significant symptoms.

Facing a New Experience

The majority of participants reported that the practice was a "totally new experience". Their initial reactions included feeling skeptical (002,008, 022), finding it challenging (009, 016, 017), feeling uncertain or neutral (013, 014), and disliking the practice (007). For example, participant 008 was skeptical and attended based on strong encouragement from his social worker:

> "I entered this programs thinking that this is full of crap and leaving it with great respect for the practice of Qigong."

Another participant (010) had had no exposure to integrative practices before:

> "I've never done that kind of meditation or anything like that (before)."

Some participants felt uncomfortable or "weird" with the practice initially. Participants focused on learning the new skills and found the home practice manual and CD helpful in reinforcing their learning. The instructor's style and flexibility helped them to feel more comfortable:

> "It wasn't about doing the moves correctly - it was about participating and being in the moment… focusing on the breath."

Adapting to the Practice

*Discovering the Benefits***.** Participants seemed to go through a process as they became more familiar with the practice. One participant described needing to change her mindset to let go of the expectation that "faster is better." She described that the practice helped her to slow down, "let go a little" and become more mindful and in touch with her feelings. Other participants also commented that the practice helped them slow down and feel more centered and focused (002, 009, 013, 014, 016, and 017). For example, 016 commented "it clears your mind, it brings you back."

Two participants were trying to figure out if the Qigong, their therapy, or everything together contributed to their improvement. As participants became more comfortable with the practice,

they recognized benefits and some were surprised at how much better they felt. Participants reported feeling less stress (007, 008, and 010) and more peaceful, calm, and relaxed (002, 011, 013, 014, 016, and 019). Other common themes included improved mood (010, 013, 014, and 019), sleep (007, 014, and 023), and energy (008, 016).

Having Ups and Downs. Most participants were distressed or dealing with significant symptoms when they enrolled in the program. Some were overwhelmed; others were dealing with memory problems, anger, or depression; some were experiencing pain related to amputations, wounds or other injuries. Despite these challenges, most participants began to notice improvements with the practice although it was not always a linear process. For example, Participant 009 stated that Qigong helped him relax and focus but he still gets easily frustrated. Another participant with PTSD commented on having "down times and up times over the course of 10 weeks but felt that the practice "helped make the bad days a little better." Participant 017 was experiencing challenges related to family concerns and expressed that "things haven't gotten easier but… I'm able to withstand more."

Several participants reported challenges related to home practice. Participant 023 missed classes due to surgery and schedule changes. He did not feel comfortable practicing at home because he got behind and did not know all the movements. Other participants reported limited space for home practice, and others mentioned their preference for practicing with others in the class.

Noticing Improvements in Symptoms and Function. Several participants reported improvements in physical function and symptoms. Three participants (008, 010, and 017) reported fewer headaches; 008 also reported improved speech and less frequent emergency room visits:

> "I have decreased my ER visits and made my life easier to exist in the world as a soldier, wife, and a mother…. I should be thanking you for returning me to the woman I was."

Participant 013 had prosthesis and reported initially needing to practice sitting down but over time being able to practice more standing. Participant 016 reported improvement in range of motion and flexibility; and decreased pain.

> "I have used the little I learned to help with post-op pain and movement. It is awesome. I used the movement in a hot tub and my range of motion dramatically improved."

Participant 023 became aware of previously unrecognized balance problems that prompted him to get further evaluation. Participant 009 attributed improvements in balance to Qigong practice.

Incorporating the Practice in Daily Life

Finding the Practice Portable. Participants found the practice to be portable and convenient. Seven participants reported incorporating Qigong skills in their daily life. Participant 007 reported that the physical movement aspect of the practice made it accessible and helped her to get into the breathing. Participants 011 and 017 reported taking better care of themselves since practicing Qigong:

> "These practices have become part of a new healthy routine of taking better care of myself." (011)

Participant 017 loaded the CD on her iPad and reported practicing while waiting for an appointment:

> "The self-massage of the hands is like my standard practice now…. I haven't been taking any side medications because I do the remembering breath… which is pretty easy and slows you down."

Adapting Healthier Coping Styles. Participants reported using Qigong skills such as "remembering breath" to help them deal with stressful situations. Several attributed improved coping and decreased anger to Qigong practice (008, 010, 013, 016, and 017). Participant 016 used the breathing techniques to deal with anger and to walk away from difficult situations. Another participant reported that he used the breathing practices to help deal with family problems when "my whole family was beating down on me." Participant 010 was going through a divorce and had a conflict with his wife:

> "Normally, I would head straight to the liquor store, but this time I settled into my body, watched my breathing, felt myself calming down. Without a drink."

Planning to use Qigong skills in the Future. Many participants reported that the practice would be helpful to them in the future. Participant 002 planned to use Qigong skills after discharge to help him deal with his stressful responsibilities as a truck driver. Participant 010 liked the meditation aspect of the practice and had already incorporated this practice into his life. Participant 014 planned to practice when feeling anxious. Participant 019 commented that Qigong may be helpful in the future as a "relaxation technique to take the time to … if I get irritated ... to get re-centered." He reported that having a video would facilitate his ability to practice in the future.

Relationship of current findings to previous findings:

No previous studies of Qigong have been conducted in this population.

Effect of problems or obstacles on the results:

The original plan was to recruit six to ten participants per month and have them progress as a cohort through the 10-week intervention. With recruitment lower than anticipated, the research study team proposed, gained IRB-approval, and adopted a "rolling" enrollment model (with participants joining a group already in progress). New participants attended a brief orientation 30 minutes before their first class to introduce them to the practice. Based on data analysis, rolling enrollment did not seem to affect the quality of the intervention or reported benefits. Recruitment seemed to be negatively affected by stress and injuries, a complex treatment plan, a lack of familiarity with Qigong, and the 10-week length of the programs. For example, some participants expressed interest in the study but were not willing to commit to 10 weeks of classes. Participants missed classes because of medical and other schedule conflicts, vacations, convalescent leave and surgeries. These barriers made high enrollment and consistent

participation unfeasible. The addition of a weekly early-morning make-up class helped some participants who had internships or other scheduling conflicts that coincided with their regularly scheduled Qigong classes. Some participants had memory problems related to TBI or PTSD, and reported forgetting about home practice; and some needed cues to remind them about classes. The study coordinator texted participants the morning of classes and checked in periodically with participants who missed classes. The instructor also reminded participants to return their practice logs on a weekly basis.

Limitations:

Limitations of the study included high dropout rate and limited post-questionnaire data available to assess effectiveness and satisfaction. Although the study coordinator made several attempts to reach participants who exited early, it was challenging to obtain this data. Participants were often in the process of being discharged or transferred and were not willing or able to return for the follow-up data collection appointments. A few participants who left the MTF had completed practice logs but did not mail them back. Two participants agreed to participate in phone interviews for the exit interviews and a few sent detailed emails about their experience. These follow-up efforts were helpful in capturing additional qualitative data to support the effectiveness of the intervention.

Conclusion:

The primary aim of this exploratory study was to assess the feasibility and acceptability of Qigong practice in wounded, ill and injured military personnel returning from combat-related deployment. Participants attended an average of 8.14 (SD= 4.9) of 20 scheduled classes; average engagement was 5.7 (SD 3.5) weeks. Reasons for dropout included discharge (n=5), medical schedule conflict (n=1) and unknown (n=5). Eleven participants provided data on their home practice (M=2.89, SD 1.85 practice sessions per week).

The second aim was to assess the potential efficacy of Qigong on reducing or mitigating stress, sleep, and somatic symptoms. Seven participants completed post-questionnaires and 10 provided exit interviews.
Effect sizes were moderate for stress (.455), sleep (.426), and somatic symptoms (.619).

The third aim was to evaluate participants' experience in using the intervention. The research team describes participants' experience with the practice as a process consisting of three phases. The initial phase, "Facing a New Experience", was characterized by a range of reactions including surprise, uncertainty, and skepticism. During the second phase, "Adapting to the Practice", participants were "Discovering the Benefits", "Having Ups and Downs" and "Noticing Improvement in Symptoms and Function." The third phase, "Incorporating the Practice in Daily Life", involved "Finding the Practice Portable", "Adapting Healthier Coping Styles", and "Planning to use Qigong Skills in the Future". The phases were not always linear; participants' experience was impacted by challenges such as struggles with home practice, missed classes due to scheduling conflicts beyond their control, and dealing with significant symptoms.

The qualitative data provide further support for the effectiveness of Qigong practice in reducing stress and improving related symptoms. Participants reported improvements in sleep quality,

stress levels, and somatic symptoms. Several participants incorporated Qigong skills in their daily life and commented that even a few minutes of practice a day was helpful to them. They reported that the practice enhanced their ability to manage anger and sleep; improved balance, reduced pain and headaches, and improved physical function. Participants reported finding peace, and feeling more relaxed, centered, and focused. Several participants recommended shorter program duration, more flexible class offerings, and that classes be made available at all MTFs for wounded, ill and injured Service members.

The results support that a ten-week intervention is not feasible for this highly mobile population; however, acceptability and satisfaction were high, as measured by the Client Satisfaction Questionnaire, patient interviews, emails and field notes.

Significance of Study or Project Results to Military Nursing

Wounded, Ill and Injured military Service members experience significant stress and are at risk for developing chronic conditions. Military personnel deployed to combat zones are at increased risk for posttraumatic stress disorder (PTSD), depression, substance abuse and impairment in social and employment settings (Hoge, Auchterlonie, & Milliken, 2006). A recent survey sought to identify rates of posttraumatic stress and depressive symptoms in military personnel returning from Iraq or Afghanistan (Lapierre et al., 2007). Approximately 44% of participants reported significant depression and/or posttraumatic stress symptoms, which were associated with lower life satisfaction.

Other symptoms associated with traumatic injuries include poor sleep, nightmares, depression, anxiety, pain, and other symptoms (Wain et al., 2005). Pain and symptom management are challenging in the setting of polytrauma and some service members are reluctant to use medications to treat these symptoms. Treating Wounded, Ill and Injured Service members is also complicated by challenges such as scheduling difficulties and emotional/cognitive issues that affect compliance with treatment (Sayer et al., 2009). Integrated multimodal approaches are needed to comprehensively address common symptoms in this setting (Pain Management Task Force Report, 2010). This focus on integrated approaches supports the growing use of acupuncture, yoga, and other relaxation techniques among injured service members.

Qigong, a meditative movement practice from traditional Chinese Medicine, may be promising since it focuses on wellness, promotes stress reduction, and is not associated with the stigma of traditional mental health treatment. It is a self-care practice that is more accessible than most yoga practices and can be adapted to those with injuries. Qigong has been shown to promote health and the relaxation response (Benson, 2000). This feasibility study demonstrated that Qigong is a safe and beneficial practice that is easy to learn and highly portable. For most participants, Qigong promoted relaxation and sleep, reduced somatic symptoms, improved balance, and enhanced coping skills for dealing with stress and anger. These changes are likely to positively impact rehabilitation, quality of life, and readiness.

The results of this study have implications for educating nurses and other health care providers about the benefits of meditative movement practices in promoting the relaxation response and potentially improving symptoms and physical function. Health care providers can provide education to patients and caregivers about Qigong skills such as breathing, self-massage and tapping acupressure points. These simple practices can facilitate stress reduction.

Military nurses can refer patients to integrative providers and community resources such as Gilda's Club and other centers that offer integrative therapy practices. Nurses can also participate in more formal training programs to teach Qigong or similar meditative movement practices to their patients and caregivers. The style of Integral Qigong used in this intervention was taught by an instructor with 200 hours of training, but facilitators can be trained in an equivalent practice, Tai Chi Easy, in as little as 25 hours (Jahnke, Larkey, & Rogers, 2010; Tai Chi Easy, 2012.) This more accessible training makes it possible for nurses and other healthcare providers to learn how to lead small groups or work 1:1 with patients. The study authors recommend that another

feasibility study be conducted using Tai Chi Easy, incorporating participant suggestions and lessons learned from this study.

Changes in Clinical Practice, Leadership, Management, Education, Policy, and/or Military Doctrine that Resulted from Study or Project

None to date.

References Cited

Benson, H. (2000). *The relaxation response*. New York: HarperCollins.

Hoge, C. W., Auchterlonie, J. L., & Milliken, C. S. (2006). Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *JAMA, 295*(9), 1023-1032.

Jahnke, R., Larkey, L., & Rogers, C. (2010). Dissemination and benefits of a replicable Tai Chi and Qigong program for older adults. *Geriatric Nursing, 31* (4), 272-280. Doi: 10.1016/j.gerinurse.2010.04.012.

Lapierre, C. B., Schwegler, A. F., & LaBauve, B. J. (2007). Posttraumatic stress and depression symptoms in soldiers returning from combat operations in Iraq and Afghanistan. *Journal of Traumatic Stress, 20*(6), 933-943. doi: 10.1002/jts.20278

Pain Management Task Force Report. (2010). Washington DC: Tricare Retrieved from http://www.armymedicine.army.mil/reports/Pain_Management_Task_Force.pdf

Sayer, N. A., Rettmann, N. A., Carlson, K. F., Bernardy, N., Sigford, B. J., Hamblen, J. L., & Friedman, M. J. (2009). Veterans with history of mild traumatic brain injury and posttraumatic stress disorder: Challenges fro provider perspective. *Journal of Rehabilitation Research & Development, 46*(6), 703-716. doi: 10.1682/JRRD.2009.01.0008

Tai Chi Easy: How to Become a Tai Chi Easy™ Practice Leader. Retrieved from http://www.taichieasy.org/introduction/tce_trainingpath.htm

Wain, H., Bradley, J., Nam, T., Waldrep, D., & Cozza, S. (2005). Psychiatric interventions with returning soldiers at Walter Reed. *Psychiatric Quarterly, 76*(4), 351-360. doi: 10.1007/s11126-005-4971-0

Summary of Dissemination

Podium Presentations	Several abstracts were submitted for podium presentations. Unfortunately these were not accepted, or they were accepted as poster presentations.	
Poster Presentations	Feasibility Of a Mind-Body Intervention to Promote Wellness in Injured Soldiers, Poster presented at AMSUS Conference, San Antonio, TX 06, 07 NOV 2011	03 NOV 2011 WRNMMC IRB
	Feasibility Of a Mind-Body Intervention to Promote Wellness in Injured Soldiers, Poster presented at VCU Race, Ethnicity and Disabilities Conference, Arlington, VA 01, 02 MAR 2012	25 JAN 2012 WRNMMC IRB
	Qigong to Promote Wellness in Injured Military Service Members: A Feasibility Study. Poster presented at the Military Health Systems Research Symposium, Fort Lauderdale, August 15, 2012	August, 2012 WRNMMC IRB

Recruitment and Retention Table

Recruitment and Retention Aspect	Number
Subjects Projected in Grant Application	35
Subjects Available	Unknown
Subjects Contacted or Reached by Approved Recruitment Method	*This is unknown. The research team is unable to accurately estimate the quantity of individuals contacted.*
Subjects Screened	59
Subjects Ineligible	33
Subjects Refused	none
Human Subjects Consented	26
Subjects Who Withdrew	5
Subjects Who Completed Study	10
Subjects With Complete Data	7
Subjects with Incomplete Data	3

Demographic Characteristics of the Sample

Characteristic	
Age (yrs)	35±9.3
Women, n (%)	6 (23)
Race	
White, n (%)	15 (60)
Black, n (%)	4 (16)
Hispanic or Latino, n (%)	5 (20)
Native Hawaiian or other Pacific Islander, n (%)	( )
Asian, n (%)	( )
Other, n (%)	1 (4)
Military Service or Civilian	
Air Force, n (%)	( )
Army, n (%)	25 (96)
Marine, n (%)	1 (4)
Navy, n (%)	( )
Civilian, n (%)	( )
Service Component	
Active Duty, n (%)	13 (50)
Reserve, n (%)	6 (23)
National Guard, n (%)	6 (23)
Other	1 (4)
Prior Military but not Retired, n (%)	( )
Military Dependent, n (%)	( )
Civilian, n (%)	( )